U.S. BUREAU OF RECLAMATION

PACIFIC NORTHWEST REGION

FINDINGS AND COMMITMENTS
IMPLEMENTING DECEMBER 2000 BIOLOGICAL OPINIONS
FOR THE
FEDERAL COLUMBIA RIVER POWER SYSTEM
AND OTHER RELATED ACTIONS

TABLE OF CONTENTS

LIST OF ATTACHMENTS

FINDINGS AND COMMITMENTS

I. INTRODUCTION AND CONSULTATION SUMMARY

A. INTRODUCTION

This Findings and Commitments (FinCom) is the U.S. Bureau of Reclamation's (Reclamation's) response to the recommendations in the Endangered Species Act (ESA) Section 7 Biological Opinions (BiOps) of the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) on operation of the Federal Columbia River Power System (FCRPS)[1]. The Action Agencies for these BiOps are the Bureau of Reclamation (Reclamation), the U.S. Army Corps of Engineers (Corps), and the Bonneville Power Administration (BPA). Each of the Action Agencies is providing its own notification of final decision.

Federal regulations define the responsibilities of the implementing federal agency following the issuance of a biological opinion. 50 CFR Part 402.15 (a) states that "(F)ollowing the issuance of a biological opinion, the Federal agency shall determine whether and in what manner to proceed with the action in light of its Section 7 obligations and the Service's biological opinion." Section 402.15 (b) states: "(I)f a jeopardy biological opinion is issued, the Federal agency shall notify the Service of its final decision on the action.[2]" This FinCom constitutes Reclamation's notification to the Services pursuant to these regulatory requirements. As set out below, Reclamation, pursuant to its statutory obligation under Section 7 of the ESA, is issuing this FinCom to concur in and commit to carrying out the activities identified in the NMFS 2000 BiOp and the FWS 2000 BiOp to avoid jeopardizing listed species. This document also identifies specific Reasonable and Prudent Alternative (RPA) and Incidental Take Statement requirements that will require special attention, and sets forth key strategies Reclamation intends to follow in accomplishing the numerous actions set forth in the BiOps. Reclamation's Biological Assessment, the NMFS BiOp, and this FinCom cover not just the operation of Reclamation's projects affiliated with the FCRPS, but also the operation and maintenance of the Columbia Basin Project and the aggregate effects of 18

---

[1]The FWS BiOp, Biological Opinion on Effects to Listed Species from Operations of the Federal Columbia River Power System (FCRPS) was issued December 20, 2000. NMFS BiOp, Biological Opinion on the Reinitiation of Consultation on Operation of the Federal Columbia Power System, including the Juvenile Fish Transportation Program, and 19 Bureau of Reclamation Projects in the Columbia Basin, was issued on December 21, 2000

[2]It is noted that the FWS BiOp is a non-jeopardy opinion with respect to just the operation of Reclamation projects.

irrigation projects (see table 1) on mainstem flows.

TABLE 1
U.S. BUREAU OF RECLAMATION
IRRIGATION PROJECTS IN THE COLUMBIA BASIN

PROJECT NAME	STATE
UPPER COLUMBIA RIVER *(upsteam from Snake River confluence)*	
Bitter Root	Montana
Missoula Valley	Montana
Frenchtown	Montana
Dalton Gardens	Idaho
Avondale	Idaho
Rathdrum Prairie	Idaho
Spokane Valley	Washington
Columbia Basin	Washington
Chief Joseph[3]	Washington
Okanogan	Washington
Yakima	Washington
LOWER COLUMBIA RIVER *(downstream from Snake River confluence)*	
Crooked River	Oregon
Deschutes	Oregon
Wapinitia	Oregon
The Dalles[3]	Oregon
Umatilla	Oregon

[3]Chief Joseph and The Dalles projects are irrigation works that are owned and operated by Reclamation. They are separate from the Dalles and Chief Joseph Dams owned and operated by the Corps.

Table 1 - continued from previous page

Crescent Lake Dam Project[4]	Oregon
Tualatin	Oregon

B. BACKGROUND

Since the initial ESA listing of runs of Snake River salmon in 1991, the Action Agencies have actively consulted with NMFS and the FWS concerning impacts on listed species from operations of the FCRPS. In 1992 and 1993, NMFS issued year duration biological opinions covering, respectively, 1992 and 1993 FCRPS operations. NMFS issued a multi-year BiOp covering the 1994-98 FCRPS operation in 1994. New multi-year opinions were issued by NMFS and FWS in 1995. Supplemental BiOps were subsequently issued in 1998, 1999, and early 2000 by NMFS as additional species were listed.

Consultations on the BiOps that are the subject of this FinCom were triggered by a Biological Assessment that the Action Agencies submitted to the listing agencies on December 21, 1999. The Biological Assessment covered the Action Agencies' analysis of the effects of the FCRPS on several Evolutionary Significant Units (ESUs) of listed species (see Table 2), and other related activities, including the hydrologic effects of irrigation water depletions associated with Reclamation projects on mainstem river flows. The Biological Assessment also explicitly reinitiated consultation on Reclamation projects above Lower Granite Dam, which were the subject of an extensive Biological Assessment submitted to the listing agencies in April, 1998.

[4] Crescent Lake Dam Project was included in the NMFS BiOp as a Reclamation project in the Lower Columbia River Basin. Subsequently, Reclamation has determined that with the Tumalo Irrigation District's 1998 completion of payment of its 1954 contract construction charge obligation, Reclamation no longer has any ownership or discretion related to the Crescent Lake Dam Project.

TABLE 2
SPECIES CONSIDERED UNDER THE BIOLOGICAL OPINIONS

Species/ESU	Scientific Name	Status [1/]
Anadromous Fish (NMFS oversight species):		
Snake River Sockeye Salmon	*Oncorhynchus nerka*	E
Snake River Spring/Summer Chinook Salmon	*Oncorhynchus tshawytscha*	T
Snake River Fall Chinook Salmon	*Oncorhynchus tshawytscha*	T
Snake River Steelhead	*Oncorhynchus mykiss*	T
Upper Columbia River Spring Chinook Salmon	*Oncorhynchus tshawytscha*	E
Upper Columbia River Steelhead	*Oncorhynchus mykiss*	E
Middle Columbia River Steelhead	*Oncorhynchus mykiss*	T
Lower Columbia River Chinook Salmon	*Oncorhynchus tshawytscha*	T
Lower Columbia River Steelhead	*Oncorhynchus mykiss*	T
Columbia River Chum Salmon	*Oncorhynchus keta*	T
Upper Willamette River Chinook Salmon	*Oncorhynchus tshawytscha*	T
Upper Willamette River Steelhead	*Oncorhynchus mykiss*	T
Resident Fish, Wildlife, and Plants (FWS oversight species):		
Bull Trout	*Salvelinus confluentus*	T
Kootenai River White Sturgeon	*Acipenser transmontanus*	E
Westslope Cutthroat Trout	*Oncorhynchus clarki lewisii*	Status under review
Bald Eagle	*Haliaeetus leucocephalus*	T, Proposed for delisting
Grizzly Bear	*Ursus arctos*	T
Gray Wolf	*Canis lupus*	E
Woodland caribou	*Rangifer tarandus caribou*	E
Northern Idaho ground squirrel	*Spermophilus brunneus*	T
Canadian Lynx	*Lynx canadensis*	Proposed
Macfarlane's four o'clock	*Mirabilis macfarlanei*	T
Water howellia	*Howellia aquatilis*	T
Ute's ladies tresses	*Spiranthes diluvialis*	T
Spalding's silene	*Silene spauldinii*	Proposed

[1/] T = listed under the ESA as threatened
E = listed under the ESA as endangered

During development of the NMFS and FWS 2000 BiOps, two key decisions were made. First, the effects of the Columbia Basin Irrigation Project are analyzed and included in this consultation (not just hydrologic effects on mainstem flows). Second, in recognition of complex ongoing settlement discussions in the Snake River Basin Adjudication, it became

apparent that it was not yet possible to identify specific long term operations of those projects. Accordingly, Reclamation formally withdrew its Snake River projects above Lower Granite Dam from the NMFS consultation in November, 2000. A separate interim consultation was completed on May 2, 2001 with NMFS on 10 of those projects above Brownlee Dam. Consultation with NMFS regarding the Lewiston Orchards Irrigation District is under way. Separate consultation with FWS on the Snake River projects is not necessary, because the FWS December, 1999 BiOp on these projects remains in effect. Reclamation, NMFS and FWS expect to reinitiate consultation on these projects as soon as long-term operations are resolved through the Snake River Basin Adjudication (SRBA) settlement negotiations.

The NMFS 2000 BiOp on the FCRPS is a jeopardy opinion for certain species, with Reasonable and Prudent Alternative consisting of numerous action items, Terms and Conditions, and Conservation Recommendations. Some action items apply uniquely to Reclamation, and many apply to Reclamation as one of the three Action Agencies. Reclamation operations have varying levels of influence on the action items that apply to the three Action Agencies.

The FWS 2000 BiOp is a jeopardy opinion with respect to white sturgeon, which are affected by operations of the Corps' Libby Dam. The BiOp is a non-jeopardy opinion with Reasonable and Prudent Measures, Terms and Conditions, and Conservation Recommendations with respect to bull trout, a listed species affected by Reclamation project operations. This BiOp likewise contains items that apply uniquely to Reclamation as one of the Action Agencies, and items that apply to more than one of the Action Agencies together.

Regarding tribal input to the consultation process, the Services and Action Agencies have participated in several discussions including government-to-government meetings in consultation with the 13 federally-recognized Native American Tribes (Tribes) of the Columbia Basin. In addition, the draft BiOps were posted on the World Wide Web and made available for tribal review and comment in July 2000. The NMFS and FWS discussed input received from the Tribes with all the Action Agencies during consultation and considered this information in preparing the final BiOps. Reclamation also participated in several meetings with Tribes to discuss the draft BiOps and some related NEPA activities.

Reclamation is proceeding or will soon proceed with additional consultations with NMFS and FWS for ESA coverage on tributary impacts of operations and maintenance of the following projects within the Columbia River Basin: Tualatin, Crooked River, Deschutes, Wapinitia, Yakima, Umatilla, Okanogan, and Lewiston Orchards Irrigation District. Reclamation is evaluating to determine if additional consultation for the Chief Joseph project is necessary.

II. FINDINGS AND COMMITMENTS

A. NMFS 2000 BiOp

1. Reclamation concurs with NMFS's determination that the integrated operation of the FCRPS by the three Action Agencies, in a manner consistent with the NMFS 2000 BiOp, and as further described below, will avoid jeopardy to listed anadromous fish stocks and will ensure the survival and recovery of the listed species.

2. As set forth in detail in this document, Reclamation will implement each component of the RPA contained in the NMFS 2000 BiOp that pertains to Reclamation.

3. As set forth in detail below, Reclamation will implement the Reasonable and Prudent Measures and Terms and Conditions in the NMFS 2000 BiOp that pertain to Reclamation.

4. As set forth in detail below, and to the extent funding and staffing can be made available, Reclamation will consider implementing the discretionary Conservation Recommendations included in the NMFS 2000 BiOp.

B. FWS 2000 BiOp

1. Reclamation concurs with FWS's determination that the integrated operation of the FCRPS by the three Action Agencies, in a manner consistent with the FWS 2000 BiOp, and as further described below, will avoid jeopardy to listed Kootenai River white sturgeon and will ensure the survival and recovery of the listed sturgeon and bull trout.

2. As set forth in detail below, Reclamation will implement the Reasonable and Prudent Measures and Terms and Conditions in the FWS 2000 BiOp that pertain to Reclamation.

3. As set forth in detail below, and to the extent funding and staffing can be made available, Reclamation will implement the discretionary Conservation Recommendations included in the FWS 2000 BiOp.

4. Reclamation is committed to working with BPA to implement those proposed action items identified in Section 3.A.1 of the FWS BiOp related to providing minimum flows below Hungry Horse and Columbia Falls; adopting recommended ramping rates at Hungry Horse Dam; operating under power emergency situations; and assisting BPA in studying transmission stability at Hungry Horse.

C. CONSIDERATIONS AFFECTING IMPLEMENTATION

Although it is Reclamation's goal to implement on schedule the BiOp action items that pertain to Reclamation, it should be acknowledged and anticipated that circumstances out of Reclamation's control might prevent certain action items from being completed successfully and will, in some cases, result in scheduling alterations. The schedule will be addressed in the one and five year plans (see section III.C.1) prepared in accordance with

NMFS RPA actions 1-5, 7-9, 12, and 163. The following are some potential issues that will likely surface:

1. Authority: Reclamation has limited authority to conduct work outside of authorized Reclamation projects. Generally, Reclamation can conduct appraisal-level studies and provide technical assistance but must seek authority from Congress to proceed with construction activities or formal feasibility studies. Reclamation is making efforts to obtain Congressional authorization for off-site mitigation construction authority in those subbasins for which Reclamation is listed as the responsible action agency.

2. Funding: Reclamation prepares an annual budget request approximately 2 years ahead of actually receiving an appropriation from the Congress. Due to program modifications in the interim, there are normally items that require funding that were not listed in the annual request; further, Congress may appropriate less than the amount requested by the Administration. Funding shortfalls are expected and Reclamation will work with the Services and other Federal and state agencies and tribes to prioritize the work for that fiscal year within the constraints of available funding. Congress occasionally adds funding to the administration's budget request. Reclamation will also work with the Services to prioritize use of these ESA implementation funds.

3. Environmental Compliance: Many action items in the BiOps include specific schedules for completion, but many of these same items also require environmental compliance such as the preparation of NEPA documents prior to implementation. Mitigation activities identified during the NEPA process may increase costs and delay final implementation of the action items. Reclamation will work with the Services to address and coordinate any delays in schedule due to environmental compliance.

4. Litigation: It is anticipated that litigation will occur during the implementation phase of the BiOps. Reclamation will work with the Services to address and coordinate any delays in scheduling resulting from litigation.

5. Emergencies: Unforseen power emergencies, safety considerations, emergency/critical maintenance, drought and other natural disasters can occur and may require modifications in operations at Reclamation projects. Reclamation will coordinate any deviations in operations with the Services and other parties affected by the actions.

III. IMPLEMENTATION

A. SUMMARY OF BIOP COMPONENTS APPLICABLE TO RECLAMATION

The RPA section of the NMFS 2000 BiOp included 199 action items that recommended that Action Agencies perform certain work to avoid jeopardizing the continued existence of several listed species. Attachment A lists the action items that are specific to Reclamation. In addition to the RPA action items, the Services recommended Reclamation perform work identified as Reasonable and Prudent Measures (RPMs) and Terms and Conditions of the Incidental Take Statements in both the NMFS 2000 BiOp and the FWS 2000 BiOp. Appendices B and C summarize that work identified for Reclamation.

Appendices D and E list the Conservation Recommendations from the BiOps that pertain to Reclamation. These recommendations are not mandatory to avoid jeopardy. Implementation by Reclamation will be on a case-by-case basis after considering funding and staff availability.

B. RECLAMATION'S IMPLEMENTATION STRATEGY

Reclamation will, consistent with its authorities and funding, implement the actions as identified in the RPA (Attachment A) and Incidental Take Statements (Appendices B and C) in an adaptive management approach to comply with the Services' BiOps. This work effort will require coordination with the Services, tribes and other Federal and state agencies. The extent of work initiated or completed by Reclamation will be determined by appropriations from the Congress and will be subject to modifications due to factors identified in section II.C of this document. These constraints will affect many of the completion dates suggested in the BiOps. Therefore, Reclamation will, in consultation with NMFS and FWS and in cooperation with the other action agencies, complete those items as soon as practical. Many of the required actions are clearly beyond Reclamation's authority, and completion will rest with the other Action Agencies. To summarize Reclamation's anticipated role, implementation strategy codes have been assigned and are shown following each action item in Appendices A through C.

1. Adaptive Management Through the Development of Annual and Five-Year Plans: It is impractical to detail all implementation and schedule requirements for action items in this document. Therefore, Reclamation will use the required annual and 5-year plans (see Action Items 1-5, 7-9, 12, and 163 in Attachment A) to identify the anticipated work. These plans will serve as Reclamation's blueprints for anticipated actions within the respective periods of time and the plans will be updated annually and coordinated with the Services, the other Action Agencies, and other appropriate federal agencies, state agencies and tribes. These plans are not decision documents but used as planning tools. Prioritization of work and any changes in schedule will be addressed in the plans.

2. RPA Components and Incidental Take Statement - Reasonable and Prudent Measures and Terms and Conditions (Attachments A-C): Reclamation will work within the established implementation forum to coordinate and implement the required items in the

BiOps. Although many of the action items identify "Action Agencies" to conduct the work, in reality, some of these items are clearly Corps and/or BPA responsibilities and initiatives and Reclamation will have very limited participation in these action items.

Reclamation intends to implement the RPAs and Incidental Take Statement requirements in the BiOps. However, several recommendations listed require clarification by Reclamation to explain how implementation will be accomplished:

- Attachment A, Action Item 8: Reclamation has limited authority and expertise to assist in hatchery and harvest issues and therefore will have very limited participation in this effort.

- Attachment A, Action Items 14-19: The recommended flow targets and reservoir elevation objectives are not achievable under all water conditions, especially during drought years. Reclamation will coordinate within the established implementation forum for in-season implementation of theses actions.

- Attachment A, Action Item 32: Reclamation will continue to pursue opportunities to acquire water above Lower Granite Dam. This will be from willing sellers and will comply with state water law. At this time, it is not likely that water can be obtained from Idaho Power Company's Hells Canyon Complex. However, a settlement from the ongoing Snake River Basin Adjudication negotiations may include some opportunities for additional water for fish.

- Attachment A, Action Item 39: Reclamation will limit the monitoring of pesticides to those chemicals used by the irrigation districts to control aquatic plant growth in canals and laterals.

- Attachment A, Action Item 132: Although Reclamation is working within the Water Quality Team to complete this action, the February 2001 deadline has not been met and the activities to comply with this item will be addressed in the annual and 5- year plans.

- Attachment A, Action Item 143: Due to a lack of authorized projects in the lower Snake River, Reclamation will limit its participation to reviewing plans and providing comments.

- Attachment A, Action Item 149: Reclamation has limited authority to work outside of authorized Reclamation projects. Technical assistance, planning and water acquisitions are the only current authorized functions available. Additional authority to fund the construction work portion of this action is being pursued.

- Attachment A, Action Items 156, 164 and 168: Reclamation has limited authority and expertise to work in these areas and will rely heavily on the Corps, BPA and others to fulfill the requirements.

- Attachment A, Action Item 169: Reclamation's authority limits funding for development of HGMPs at hatcheries associated with Grand Coulee Dam mitigation.

- Attachment A, Action Item 171: Reclamation will implement this item as funding is appropriated by Congress or acquired from BPA and may be restricted depending on the extent of the reforms developed and approved by NMFS.

- Attachment A, Action Item 184: Reclamation's involvement will be limited to hatcheries associated with Grand Coulee Dam mitigation.

- Attachment A, Action Items 188 and 190: Reclamation will play a very minor role and will rely on the Corps to fund and perform the majority of this work.

- Attachment A, Action Items 194-197: Reclamation has limited authority and expertise in estuary/ocean environments and will have in a very limited role in this action item.

- Attachment A, Action Item 198: Reclamation records water quality data in EPA's "STORET" database system. Development of an additional water quality database may not be prudent at this time. Reclamation will participate with other Federal and state agencies on this issue.

- Attachment B, Item 10.5.2.1: Reclamation will participate only in a review capacity for the Total Dissolved Gas model development effort.

- Attachment B, Item 10.5.2.2: Due to the absence of Reclamation projects in the lower Snake River, Reclamation will participate in a review capacity only for water temperature model development.

- Attachment B, Item 10.5.3: Reclamation or its contractors will carry out research to support Reclamation's actions under the BiOp. This research may result in the take of listed fish. Reclamation and its contractors will abide by the terms and conditions for research projects.

- Attachment C, Items 10.7 and 10.8: Reclamation will participate only in a review capacity.

- Attachment C, Item 11.4: Reclamation will likely have to obtain additional authorities prior to participation in the implementation of this action item.

- Attachment C, Item 11.A.1.2.a: Reclamation will fulfill the recommendations through the completion of the annual Technical Management Team annual water management plan. Reclamation recognizes the plan is being developed and will be completed after the recommended deadline. FWS is a member of the Technical Management Team. Reclamation will make available to the FWS the requested Hungry Horse lake elevations and releases from Hungry Horse Dam by posting the information on a Reclamation Internet site. The current web addresses are http://mac1.pn.usbr.gov/ and http://mac1.pn.usbr.gov/pn6200/esatea.html.

3. Conservation Recommendations (Attachments D and E): Reclamation will implement these actions on a case-by-case basis as funding and other resources allow. The actions regarding water quality concerns may be implemented based on Clean Water Act compliance needs.

C. ENVIRONMENTAL COMPLIANCE

Reclamation is committed to comply with all applicable state and federal laws in implementing the actions identified in the Incidental Take Statements and Reasonable and Prudent Alternatives in the BiOps. Proper compliance with these laws could possibly delay the actual implementation date of the action(s). We anticipate that the following state and Federal laws may apply to some, if not all, of the implementation actions:

1. National Environmental Policy Act Compliance

   The BiOps direct Reclamation to undertake Federal actions that will affect the human environment. The National Environmental Policy Act (NEPA) requires federal agencies to assess and document the significance of environmental impacts that may result from implementation of proposed federal actions. Reclamation will conduct the appropriate process and will prepare documentation to fulfill the requirements of NEPA and will comply with NEPA regulations promulgated by the Council of Environmental Quality.

2. National Historic Preservation Act and Native American Graves Protection and Repatriation Act Compliance

   Section 106 of the National Historic Preservation Act (NHPA) requires Reclamation to take into account the effects of proposed Federal undertakings on historic properties listed on or eligible for listing on the National Register of Historic Places. NHPA also

requires Reclamation to consult with state Historic Preservation Officers (SHPOs), Tribes, and the National Advisory Council. In meeting the requirements of NHPA, Reclamation will conduct the appropriate surveys, provide required documentation, and enter into appropriate Memoranda of Agreement or Programmatic Agreements to mitigate any adverse effects which may result from implementation of the action items required in the BiOps. Separate Section 106 compliance processes will be undertaken for the proposed actions at Hungry Horse Reservoir, Lake Roosevelt, Banks Lake, and offsite habitat activities. Time frames for Section 106 compliance will closely mirror those projected or carried out for NEPA processes.

Reclamation must also follow the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA). All procedures described in the Department of Interior implementing regulations for the appropriate repatriation/disposition of Native American remains and objects specified by NAGPRA will be followed.

3. Clean Water Act Compliance

In developing the Biological Opinions, NMFS and FWS, in coordination with EPA, the Corps, Reclamation, and BPA, considered respective ecological objectives of the ESA and the Clean Water Act (CWA). In many instances, actions implemented for the conservation of ESA-listed species will also move toward attainment of water quality standards (e.g., reducing Total Dissolved Gas (TDG) and water temperature). In the Snake and Columbia rivers the overlap of statutory purpose is extensive; nevertheless, there remain additional actions that are appropriate in a water quality plan but which are not essential for the survival and recovery of the listed species and thus are not required components of the ESA Reasonable and Prudent Alternative.

Appendix B in the NMFS BiOp charts a course for development of a water quality plan for the mainstem Columbia and Snake rivers to address CWA objectives. The scope of this plan is broader than the FCRPS and would include additional actions to improve mainstem water quality by reducing TDG and water temperature. Certain actions are expected to be undertaken by entities other than Reclamation or the other Federal Action Agencies. Although Appendix B in the NMFS BiOp is not a water quality plan, it suggests the procedure for development of a plan and identifies actions the plan would likely contain to move toward attainment of water quality standards for the Columbia and Snake rivers, including the FCRPS. Appendix B refers to items already called for in the RPA for the FCRPS as a nucleus of actions for the water quality plan. These actions are essential for the survival and recovery of the listed species and thus are required components of the RPA.

Appendix B in the NMFS BiOp also identifies actions for the FCRPS that further CWA

objectives but are not also called for in the NMFS RPA. These actions are listed in Table B-3 of the Appendix. These are studies to investigate additional measures to reduce dissolved gas and water temperature that may be considered for implementation in the future. These studies are appropriate as ESA conservation measures that will require further ESA consultation when they are developed, analyzed, and proposed for implementation. A water quality plan is likely to require lengthy study and implementation exceeding the duration of the NMFS BiOp.

Subject to availability of funds and Congressional directives, Reclamation is prepared to participate in implementing Appendix B of the NMFS 2000 BiOp. Reclamation is willing, consistent with its mission, to work with the Action Agencies to develop and implement the water quality plan and undertaking practical alternatives to meet Total Maximum Daily Load (TMDL) goals.

Reclamation will attempt to harmonize operations to comply with both the ESA requirements, determined by the NMFS and FWS, and the state and tribal water quality standards. For the purposes of the actions called for in the NMFS and FWS BiOps, Reclamation dams are not required to obtain National Pollutant Discharge Elimination System (NPDES) permits under Section 402 of the CWA, and their operation is not subject to CWA Section 401 (water quality certifications). [SJ 2 p 42].

At times during the warmer summer months, the water temperatures in the Columbia Basin are above the state and tribal water quality standard for water temperature. The Washington water temperature standard is 68 degrees F below Grand Coulee and 60.8 degrees F in Lake Roosevelt. The construction and existence of the dams has contributed to the water temperature regime of the river and other factors contribute to the water temperature in the main stem. There is no evidence that the dams are the sole cause of the water temperature variations or that any structural modifications of mainstem projects would reduce water temperature in the reservoirs.

The TDG and temperature water quality information Reclamation has or develops in the future will be provided to EPA, the states, and appropriate tribes as part of the water quality plan. When the states and EPA develop additional information, including TMDLs for the Columbia River Basin, Reclamation will be able to determine what actions it may take consistent with those water quality parameters. Until that time, Reclamation, as it has in the past, will provide information on water quality at its dam and reservoir projects covered by the 2000 Biological Opinions in order to assist the four Northwest states, tribes and EPA in their TMDL process.

4. Magnuson - Stevens Fishery Conservation and Management Act Compliance

The Magnuson-Stevens Fishery Conservation Act requires Federal agencies to consult with NMFS on activities that may adversely affect Essential Fish Habitat (EFH). Chapter 12 of the NMFS 2000 BiOp addresses the EFH designation for "ground-fish" that are limited to the estuary of the Columbia River and near shore ocean and proposed EFH for salmon that covers the Columbia River below Chief Joseph Dam, the Snake River below Hells Canyon Dam, and most tributaries in those areas.

Action 163 (page 12-13) in the BiOp is the only EFH recommendation item directed to Reclamation. It reads: "The Action Agencies and NMFS, in conjunction with the Habitat Coordination Team, will develop a compliance monitoring program for inclusion in the first annual and 5- year plans." This relates to the work to restore anadromous fish habitat in various Columbia River subbasins and is a repeat of the requirement from the RPA section of the BiOp (see page 9-143).

Because this recommendation relates to "proposed" EFH for salmon, Reclamation is not required to respond with a plan to comply with the recommendation. However, the recommendation is a repeat of a required action item in the RPA and Reclamation intends to comply with the measure.

5. Compliance with Other Environmental Laws and Regulations

In implementing the Terms and Conditions of the BiOps, Reclamation will comply with all applicable laws, regulations, and executive orders enacted or promulgated to protect or conserve environmental resources. These laws, regulations, and executive orders may include but are not limited to Fish and Wildlife Coordination Act; Endangered Species Act Section 7; Clean Water Act Section 404; Native American Graves Protection and Repatriation Act; Indian trust assets; sacred sites; wetland protection; Comprehensive Environmental Response, Compensation and Liability Act; Clean Air Act; Pacific Northwest Electric Power Planning and Conservation Act; etc.

Documentation of compliance with related environmental laws, rules, regulations and executive orders will be integrated to the extent possible into the NEPA and planning processes.

6. Tribal Trust Responsibilities

Reclamation will comply with the Executive Order on Consultation and Coordination with Indian Tribal Governments. In formulating and implementing policies that have Tribal implications, Reclamation will consult with the affected Tribes early in the process. In addition, Reclamation will work with NMFS and FWS in their implementation of appropriate Secretarial Orders on American Indian Tribal Rights, Federal-Tribal Trust

Responsibilities and Endangered Species Act implementation.

IV. REINITIATION OF CONSULTATIONS

Reinitiation of consultation is governed by regulations set forth at 50 CFR 402.16 and is required "(a) If the amount or extent of taking specified in the incidental take statement is exceeded; (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) If a new species is listed or critical habitat designated that may be affected by the identified action." Reclamation will, in cooperation with the other Action Agencies and Services, apply these criteria to determine whether reinitiation of consultation is necessary.

V. APPROVAL

I have considered the finding and commitments in this document and found them to be sufficient for Reclamation to adequately implement the Reasonable and Prudent Alternatives and Incidental Take Statements in the 2000 FWS and NMFS BiOps. I have determined that these actions, taken together, will meet Reclamation's responsibilities under the ESA to avoid jeopardy to bull trout and twelve listed ESUs of anadromous fish species (Snake River spring/summer chinook and fall chinook salmon; Snake River sockeye salmon; upper Columbia River spring chinook salmon; Snake River, lower Columbia, middle Columbia, upper Columbia River, and upper Willamette River steelhead; lower Columbia chum salmon; lower Columbia chinook salmon, and upper Willamette River chinook salmon) and will not further adversely affect their critical habitat.

I have also taken into account the Pacific Northwest Treaty Tribes' fishing rights, the United States' trust responsibility to Indian Tribes and its responsibility to act in a manner consistent with the trust responsibility. The actions that Reclamation will implement are designed to lead to increased survival and recovery of the listed salmon species with beneficial results to the Treaty Tribes' fishery and benefits to the Pacific Northwest Region as a whole. Although there is scientific disagreement, the conclusions in the NMFS and FWS BiOps take into account the differing scientific opinions and interpretations of available information. Reclamation's decision to rely on the biological information contained in the BiOps is based, in part, on NMFS and FWS consideration of the differing scientific (biological) information and their expertise on the effects on other species of interest to Pacific Northwest Tribes.

Signed:_____ Date:_____

Kenneth R. Pedde
Acting Regional Director

ATTACHMENT A
U.S. NATIONAL MARINE FISHERIES SERVICE'S
FEDERAL COLUMBIA POWER SYSTEM BIOLOGICAL OPINION
SUMMARY OF REASONABLE AND PRUDENT REQUIREMENTS
FOR THE U.S. BUREAU OF RECLAMATION
December 21, 2000

Action Item	Requirement/Measure
Action 1	The Action Agencies, coordinating with NMFS and USFWS, shall annually develop 1- and 5-year plans to implement specific measures in hydro, habitat, hatcheries, harvest, research, monitoring, and evaluation needed to meet and evaluate the performance standards contained in this biological opinion.
Action 2:	The Action Agencies shall coordinate development and implementation of the hydro portion of the 1- and 5-year implementation plans through the Regional Forum, chaired by NMFS.
Action 3:	The Action Agencies, coordinating through the Technical Management Team, shall develop and implement a 1- and 5-year water management plan and in-season action plans for the operation of the FCRPS.
Action 4:	The Action Agencies, coordinating through the System Configuration Team, shall annually develop and implement a 1- and 5-year capital investment plan for the configuration of the FCRPS projects.
Action 5:	The Action Agencies, coordinating through the Water Quality Team, shall annually develop a 1- and 5-year water quality plan for operation and configuration measures at FCRPS projects.
Action 7:	The Action Agencies, with assistance from NMFS and USFWS, shall annually develop 1- and 5-year plans for habitat measures that provide offsite mitigation.
Action 8:	The Action Agencies, with assistance from NMFS and USFWS, shall annually develop 1- and 5-year plans for hatchery and harvest measures that provide offsite mitigation.
Action 9:	The Action Agencies, with assistance from NMFS and USFWS, shall annually develop 1- and 5- year plans for research, monitoring, and evaluation to further develop and to determine the effectiveness of the suite of actions in this RPA.
Action 10:	The Action Agencies shall work with NMFS and others to promptly incorporate the results of recovery planning into annual Fish and Wildlife Program implementation funding, including support for incorporation of the results into the NWPPC''s Fish and Wildlife Program.
Action 11:	By September 30, 2001, the Action Agencies shall develop procedures for carrying out actions that could not be anticipated in the planning process, but that are necessary or prudent to achieve the performance standards.
Action 12:	The Action Agencies shall coordinate with NMFS and USFWS in the review of the 1- and 5-year plans to facilitate timely review and approval as part of the annual decision process.
Action 13:	The Action Agencies shall issue annual reports to NMFS and USFWS on progress toward achieving the performance standards set out in this biological opinion, including comprehensive cumulative reviews in years 3, 5, and 8.
Action 14:	The Action Agencies shall operate FCRPS dams and reservoirs with the intent of meeting the flow objectives (Table 9.6-1) on both a seasonal and weekly average basis for the benefit of migrating juvenile salmon.
Action 15:	The Action Agencies shall operate the FCRPS to provide flows to support chum salmon

	spawning in the Ives Island area below Bonneville Dam.
Action 16:	The Action Agencies shall operate the FCRPS to provide access for chum salmon spawning in Hamilton and Hardy creeks.
Action 17:	The Action Agencies shall coordinate with NMFS, USFWS, and the states and Tribes in preseason planning and in-season management of flow and spill operations. This coordination shall occur in the Technical Management Team process (see Section 9.4.2.2).
Action 18:	The Action Agencies shall operate the FCRPS during the fall and winter months in a manner that achieves refill to April 10 flood control elevations, while meeting project and system minimum flow and flood control constraints before April 10. During the spring, the Action Agencies shall operate the FCRPS to meet the flow objectives and refill the storage reservoirs (Albeni Falls, Dworshak, Grand Coulee, Hungry Horse, and Libby) by approximately June 30.
Action 19:	The Action Agencies shall operate specific FCRPS projects as follows:
Action 21:	The Corps shall routinely identify opportunities to shift system flood control evacuation volumes from Brownlee and Dworshak reservoirs to Lake Roosevelt and identify such opportunities for the Technical Management Team. The Corps shall implement flood control shifts as necessary to best protect listed fish, as called for by NMFS in coordination with the Technical Management Team, taking into account water quality issues and the concerns of all interested parties.
Action 22:	The Corps and BOR shall implement VARQ flood control operations, as defined by the Corps (1999d), at Libby by **October 1, 2001**, and at Hungry Horse by **January 1, 2001.** By **February 1, 2001**, the Corps shall develop a schedule to complete all disclosures, NEPA compliance, and Canadian coordination necessary to implement VARQ flood control at Libby.
Action 23:	BOR shall operate Banks Lake at an elevation 5 feet from full during August by reducing the volume of water pumped from Lake Roosevelt into Banks Lake by about 130 kaf during this time.
Action 27:	Before entering into any agreement to commit currently uncontracted water or storage space in any of its reservoirs covered by this biological opinion to any other use than salmon flow augmentation, BOR shall consult with NMFS under ESA Section 7(a)(2). Such consultations shall identify the amount of discretionary storage or water being sought, the current probability of such storage or water being available for salmon flow augmentation, and any plan to replace the storage volume currently available to salmon flow augmentation that would be lost as a result of the proposed commitment. Also, BOR shall consult with NMFS before entering into any new contract or contract amendment to increase the authorized acreage served by any irrigation district receiving BOR-supplied water. NMFS'' criterion in conducting such reviews is to ensure that there be zero net impact from any such BOR commitment on the ability to meet the seasonal flow objectives established in this biological opinion. Replacement supplies should
Action 28:	BOR shall pursue water conservation improvements at its projects and shall use all mechanisms available to it under state and Federal law to ensure that a reasonable portion of any water conserved will benefit listed species.
Action 29:	Within 2 years from the date this opinion is signed, BOR shall provide NMFS with a detailed progress report addressing possible instances where BOR-supplied water within the Columbia River basin is being used without apparent BOR authorization to irrigate lands. In the report, BOR shall indicate how it shall proceed to identify and address instances of unauthorized use.
Action 30:	For those BOR projects located in the Columbia River and its tributaries downstream from Chief

	Joseph Dam (Table 9.6-2), BOR shall, as appropriate, work with NMFS in a timely manner to complete supplemental, project-specific consultations. These supplemental consultations shall address effects on tributary habitat and tributary water quality, as well as direct effects on salmon survival (e.g., impingement, entrainment in diversions, false attraction to return flows, and others). These supplemental consultations shall address effects on mainstem flows only to the extent to which they reveal additional effects on the in-stream flow regime not considered in this biological opinion (e.g., flood control).
Action 31:	BOR shall assess the likely environmental effects of operating Banks Lake up to 10 feet down from full pool during August. The assessment and NEPA compliance work shall be completed by **June 2002** to determine future operations at this project by the summer of 2002.
Action 32:	The Action Agencies shall acquire water for instream use from BOR''s Upper Snake River basin projects and Idaho Power Company''s Hells Canyon Complex during the spring and summer flow augmentation periods to improve the likelihood of achieving spring and summer flow objectives at Lower Granite Dam.
Action 34:	The Action Agencies shall evaluate potential benefits to adult Snake River steelhead and fall chinook salmon passage by drafting Dworshak Reservoir to elevation 1,500 feet in September. An evaluation of the temperature effects and adult migration behavior should accompany a draft of Dworshak Reservoir substantially below elevation 1,520 feet.
Action 35:	The Corps shall develop and conduct a detailed feasibility analysis of modifying current system flood control operations to benefit the Columbia River ecosystem, including salmon. The Corps shall consult with all interested state, Federal, Tribal, and Canadian agencies in developing its analysis. Within 6 months after receiving funding, the Corps shall provide a feasibility analysis study plan for review to NMFS and all interested agencies, including a peer-review panel (at least three independent reviewers, acceptable to NMFS, with expertise in water management, flood control, or Columbia River basin anadromous salmonids). A final study plan shall be provided to NMFS and all interested agencies 4 months after submitting the draft plan for review. The Corps shall provide a draft feasibility analysis to all interested agencies, NMFS, and the peer-review panel by September 2005.
Action 37:	BOR shall investigate the attraction of listed salmon and steelhead into wasteways and natural streams receiving waste water from the Columbia Basin Project. If listed fish are found to be attracted into these channels, BOR shall work with NMFS to identify and implement structural or operational measures to avoid or minimize such use, as warranted.
Action 38:	By **March 1, 2002**, BOR shall install screens meeting NMFS'' screen criteria at the canal intakes to the Burbank No. 2 and Burbank No. 3 pump plants. BOR shall connect the Burbank No. 3 intake canal to Burbank Slough to provide juvenile fish egress. BOR shall coordinate with NMFS on each of the actions identified above.
Action 39:	BOR shall evaluate the water quality characteristics of each point of surface return flows from the Columbia Basin Project to the Columbia River and estimate the effects these return flows may have on listed fish in the Columbia River and in the wasteways accessible to listed fish. By **June 1, 2001,** BOR shall provide NMFS with a detailed water quality monitoring plan, including a list of water quality parameters to be evaluated. If the water quality sampling reveals enough water quality degradation to adversely affect listed fish, BOR shall develop and initiate implementation of a wasteway water quality remediation plan within **12 months** of the completion of the monitoring program.
Action 118:	The Corps shall develop and implement a program to better assess and enumerate indirect

	prespawning mortality of adult upstream-migrating fish. Such mortality may be due to, or exacerbated by, passage through the FCRPS hydro projects. If measures are identified which will reduce the unaccountable adult loss rate and/or the prespawning mortality rate, the Corps shall implement these measures as warranted. The program should also enhance efforts to enumerate unaccountable losses associated with tributary turnoff, harvest, or other factors in FCRPS mainstem reservoirs and upstream of FCRPS projects.
Action 132:	The Action Agencies shall develop a plan to conduct a systematic review and evaluation of the TDG fixed monitoring stations in the forebays of all the mainstem Columbia and Snake river dams (including the Camas/Washougal monitor). The evaluation plan shall be developed by **February 2001** and included as part of the first annual water quality improvement plan. The Action Agencies shall conduct the evaluation and make changes in the location of fixed monitoring sites, as warranted, and in coordination with the Water Quality Team. It should be possible to make some modifications by the start of the 2001 spill season.
Action 133:	As part of DGAS, the Corps shall complete development of a TDG model to be used as a river operations management tool by spring 2001. Once a model is developed, the applications and results shall be coordinated through the Water Quality Team. The Corps shall coordinate the systemwide management applications of gas abatement model studies with the annual planning process, the Transboundary Gas Group, the Mid-Columbia Public Utilities, and other interested parties.
Action 136:	The Corps shall continue to develop and construct spillway deflectors at Chief Joseph Dam by 2004 to minimize TDG levels associated with system spill.
Action 143:	By **June 30, 2001,** the Action Agencies shall develop and coordinate with NMFS and EPA on a plan to model the water temperature effects of alternative Snake River operations. The modeling plan shall include a temperature data collection strategy developed in consultation with EPA, NMFS, and state and Tribal water quality agencies. The data collection strategy shall be sufficient to develop and operate the model and to document the effects of project operations.
Action 147:	As a contingency plan, the Corps (in cooperation with other Federal agencies) shall develop a project management plan to reevaluate more intensive hydropower-related actions (including breaching) for the four lower Snake River dams. The project management plan will identify the scope, schedule, costs, tasks, products, and responsibilities for the reevaluation study. The study should assess all significant changed conditions to the Lower Snake River Feasibility Report and Environmental Impact Statement (Corps 1999c). The project management plan should be consistent with direction from Congress, Corps authorities, and other legal requirements. The completed project management plan should be coordinated with the appropriate regional interests. The project management plan should include, but not be limited to, plans to mitigate disproportionate impacts to communities, industries, and Tribes, detailed water and air quality effects, implementation plans, and a complete public involvement program. The decision
Action 149:	BOR shall initiate programs in three priority subbasins (identified in the Conceptual Recovery Plan) per year over 5 years, in coordination with NMFS, FWS, the states and others, to address all flow, passage, and screening problems in each subbasin over 10 years. The Corps shall implement demonstration projects to improve habitat in subbasins where water-diversion-related problems could cause take of listed species. Under the NWPPC program, BPA addresses passage, screening, and flow problems, where they are not the responsibility of others. BPA expects to expand on these measures in coordination with the NWPPC process to complement BOR actions described in the

	action above.
Action 152:	The Action Agencies shall coordinate their efforts and support offsite habitat enhancement measures undertaken by other Federal agencies, states, Tribes, and local governments by the following: (See RPA)
Action 154:	BPA shall work with the NWPPC to ensure development and updating of subbasin assessments and plans; match state and local funding for coordinated development of watershed assessments and plans; and help fund technical support for subbasin and watershed plan implementation from 2001 to 2006. Planning for priority subbasins should be completed by the 2003 check-in. The action agencies will work with other Federal agencies to ensure that subbasin and watershed assessments and plans are coordinated across non-Federal and Federal land ownerships and programs.
Action 155:	BPA, working with BOR, the Corps, EPA, and USGS, shall develop a program to 1) identify mainstem habitat sampling reaches, survey conditions, describe cause-and-effect relationships, and identify research needs; 2) develop improvement plans for all mainstem reaches; and 3) initiate improvements in three mainstem reaches. Results shall be reported annually.
Action 156:	The Action Agencies and NMFS shall study the feasibility (including both biological benefits and ecological risks) of habitat modification to improve spawning conditions for chum salmon in the Ives Island area.
Action 163:	The Action Agencies and NMFS, in conjunction with the Habitat Coordination Team, will develop a compliance monitoring program for inclusion in the first 1- and 5-year plans.
Action 164:	The Action Agencies shall work with NMFS, USFWS, and Tribal and state fishery management agencies in a multiyear program to develop, test, and deploy selective fishing methods and gear that enable fisheries to target nonlisted fish while holding incidental impacts on listed fish within NMFS-defined limits. The design of this program and initial implementation (i.e., at least the testing of new gear types and methods) shall begin in FY 2001. Studies and/or pilot projects shall be under way and/or methods deployed by the 3-year check-in.
Action 168:	The Action Agencies shall work with NMFS, USFWS, and Tribal and state fishery management agencies to develop methods for crediting harvest reforms, and the survival benefits they produce, toward FCRPS offsite mitigation responsibilities. A crediting approach shall be agreed upon by the 3-year check-in.
Action 169:	The Action Agencies shall fund the development of NMFS-approved HGMPs for implementation, including plans for monitoring and revising them as necessary as new information becomes available. HGMPs have to be completed first for the facilities and programs affecting the most at-risk species (Upper Columbia and Snake River ESUs), followed by those affecting mid-Columbia, and then the Lower Columbia ESUs. HGMPs for all the Columbia basin hatchery programs and facilities should be completed (and approved by NMFS) by the 3-year check-in.
Action 171:	BOR shall implement the reforms identified in the HGMP planning process for the Grand Coulee mitigation anadromous fish hatchery programs, beginning immediately following completion of the relevant (NMFS approved) HGMPs and completing the work as expeditiously as feasible. BPA shall fund the operations and maintenance costs of the reforms and shall reimburse the Federal Treasury for an appropriate share of the capital costs. BOR shall have begun to implement reforms for programs affecting the most at-risk species by the 3-year check-in
	4. Obtain funding contributions as appropriate for additional sampling efforts and specific experiments to determine relative distribution and timing of hatchery and natural spawners.
Action 179:	The Action Agencies and NMFS shall work with affected parties to establish regional priorities

	within the congressional appropriations processes to set and provide the appropriate level of FCRPS funding to develop recovery goals for listed salmon ESUs in the Columbia River basin. Tasks shall include defining populations based on biological criteria and evaluating population viability in accordance with NMFS'' viable salmonid population approach. These tasks shall be completed by 2003.
Action 180:	The Action Agencies and NMFS shall work within regional prioritization and congressional appropriation processes to establish and provide the level of FCRPS funding to develop and implement a basinwide hierarchical monitoring program. This program shall be developed collaboratively with appropriate regional agencies and shall determine population and environmental status (including assessment of performance measures and standards) and allow ground-truthing of regional databases. A draft program including protocols for specific data to be collected, frequency of samples, and sampling sites shall be developed by **September 2001.** Implementation should begin no later than the spring of **2002** and will be fully implemented no later than **2003.**
Action 181:	The Action Agencies and NMFS shall work within regional prioritization and congressional appropriations processes to establish and provide the appropriate level of FCRPS funding for a program to acquire and digitize aerial or satellite imagery of the entire Columbia River basin once every 3 to 5 years.
Action 183:	Initiate at least three tier 3 studies (each necessarily comprising several sites) within each ESU (a single action may affect more than one ESU). In addition, at least two studies focusing on each major management action must take place within the Columbia River basin. The Action Agencies shall work with NMFS and the Technical Recovery Teams to identify key studies in the 1-year plan. Those studies will be implemented no later than **2003.**
Action 184:	The Action Agencies and NMFS shall work within regional prioritization and congressional appropriation processes to establish and provide the appropriate level of FCRPS funding for a hatchery research, monitoring, and evaluation program consisting of studies to determine whether hatchery reforms reduce the risk of extinction for Columbia River basin salmonids and whether conservation hatcheries contribute to recovery.
Action 188:	The Action Agencies and NMFS shall work within the annual planning and congressional appropriation processes to establish and provide the appropriate level of FCRPS funding for studies of PIT-tagged wild stocks from the lower river streams. The studies shall be used to contrast stock productivity and hydrosystem effects.
Action 190:	The Action Agencies shall continue to fund studies that monitor survival, growth, and other early life history attributes of Snake River wild juvenile fall chinook.
Action 192:	As set out in Action 50 (Section 9.6.1.3.4), BPA and the Corps shall install necessary adult PIT-tag detectors at appropriate FCRPS projects before the expected return of adult salmon from the 2001 juvenile outmigration. These adult PIT-tag detectors shall be used as needed for calculating transport benefits, conversion rates, and SARs for listed salmon and steelhead.
Action 194:	The Action Agencies and NMFS shall work within the annual planning and congressional appropriation processes to establish and provide the appropriate level of FCRPS funding for studies to develop a physical model of the lower Columbia River and plume. This model will characterize potential changes to estuarine habitat associated with modified hydrosystem flows and the effects of altered flows where they meet the California Current to form the Columbia River plume.
Action 196:	The Action Agencies and NMFS shall work within the annual planning and congressional appropriation processes to establish and provide the appropriate level of FCRPS funding for studies to develop an understanding of juvenile and adult salmon use of the Columbia River estuary. These studies support the actions to develop criteria for

	estuarine restoration (Action 158), restoration planning (Action 159), and implementation (Action 160) in Section 9.6.2.2.
Action 197:	The Action Agencies and NMFS shall work within the annual planning and congressional appropriation processes to establish and provide the appropriate level of FCRPS funding for studies to develop an understanding of juvenile and adult salmon use of the Columbia River plume.
Action 198:	The Action Agencies, in coordination with NMFS, USFWS, and other Federal agencies, NWPPC, states, and Tribes, shall develop a common data management system for fish populations, water quality, and habitat data.
Action 199:	The Action Agencies shall implement the specific research/monitoring actions outlined in Appendix H.

ATTACHMENT B
U.S. NATIONAL MARINE FISHERIES SERVICE'S
FEDERAL COLUMBIA POWER SYSTEM BIOLOGICAL OPINION
SUMMARY OF INCIDENTAL TAKE STATEMENT REQUIREMENTS
FOR THE U.S. BUREAU OF RECLAMATION
December 2000

10.4 REASONABLE AND PRUDENT MEASURES

10.4.1 Monitor Incidental Take

The Action Agencies will monitor the level of incidental take associated with the RPA and report the results to NMFS in a timely manner.

10.4.2 Reduce Incidental Take by Improving Juvenile and Adult Passage Survival

The Action Agencies will reduce the level of incidental take by implementing measures to further improve survival of juveniles and adults, in addition to measures required by the RPA. NMFS has determined that the additional measures specified in Section 10.5 constitute only minor changes to the RPA.

110.5 TERMS AND CONDITIONS

10.5.2.1 Develop a TDG Model to Inform Spill and TDG Management Decisions

The Action Agencies will complete development of, and continue to refine, a TDG model to be used as a river operations management tool. Once the model is developed, applications and results will be coordinated through the Water Quality Team. The Action Agencies will coordinate the systemwide management applications of gas abatement model studies with the annual planning process, the Transboundary Gas Group, the Mid-Columbia PUDS, and other interested parties.
TDG supersaturation, caused by water spilling over dams, can result in the injury or mortality of juvenile salmonids. Since the 1960s, increased hydraulic capacity at powerhouses of mainstem projects, increased water storage, and structural modification to spillways have substantially reduced this problem. High levels of TDG have, however, been measured under some river conditions even in recent years, e.g., during periods of involuntary spill.

10.5.2.2 Model Water Temperature to Inform Operational Decisions

By June 3 0, 200 1, the Action Agencies will develop and submit for NMFS' and EPA's approval a plan to model the water temperature effects of alternative Snake River operations.

The modeling plan should focus on water temperatures in the Snake River from Hells Canyon Dam on the Snake River and from Dworshak Dam on the Clearwater River to Bonneville Dam on the Columbia River, with predictive nodes located at the near-dam forebays and tailraces of each project. Both one-dimensional and multidimensional models (due to reservoir stratification) may be needed to fully define expected temperature

conditions within the reach. The models should be developed to function both as a preseason planning tool and to provide predicted outcomes of immediate operations in real time.

10.5.2.3 Develop Temperature Data Collection System to Inform Operational Decisions

The Action Agencies will develop, in consultation with EPA, NMFS, and state and Tribal water quality agencies, a temperature data collection strategy. Such a strategy is necessary for developing and operating the models and documenting the effects of project operation.
Existing water temperature and meteorological data are inadequate for this purpose. Existing data and statistical tools will be used to identify locations where additional or improved data collection, in terms of precision, accuracy, and frequency, would be most beneficial.

10.5.3 Terms and Conditions Related to FCRPS Research Projects Described in Section 9.6.5.3

The specific terms described below are addressed to "the researcher" because NMFS expects that the Action Agencies will conduct the research or contract it with other entities. These terms and conditions apply to the Action Agencies or their contractors who will conduct the research. The terms and conditions also refer to the researcher's designated take authorization in this incidental take statement, i.e., take associated with each numbered research activity, not to an unidentified researcher. The specific terms and conditions are described below:

10.5.3.1 Special Conditions

- ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during sampling and processing. Adequate circulation and replenishment of water in holding units is required. When using gear that captures a mix of species, ESA-listed fish must be processed first to minimize the duration of handling stress. ESA-listed fish must be transferred using a sanctuary net (which holds water during transfer) whenever necessary to prevent the added stress of being out of water. Should NMFS determine that a researcher's procedure is no longer acceptable, the researcher must immediately cease such activity until NMFS determines an acceptable substitute procedure.

- Each ESA-listed fish handled out of water must be anesthetized when necessary to prevent injury or mortality. Anesthetized fish must be allowed to recover (e.g., in a recovery tank) before being released. Fish that are simply counted must remain in water, but they do not have to be anesthetized.
- To minimize the lateral transfer of pathogens, a sterilized needle must be used for each individual injection when PIT-tagging ESA-listed fish. Sterilization methods are required for the application of surgically implanted radio transmitters.
- Whenever possible, unintentional or indirect mortalities of ESA-listed juvenile fish that occur during scientific research and monitoring activities shall be used in place of intentional lethal take, if applicable.
- Each researcher must ensure that the ESA-listed species are taken only by the means, in the areas, and for the purposes set forth in the research proposal, as limited by the terms and conditions in this incidental take statement.
- Each researcher, in effecting the take authorized by this incidental take statement, is considered to have accepted the terms and conditions of this incidental take statement and must be prepared to comply with

the provisions of this incidental take statement, the applicable NMFS regulations, and the ESA.

- Each researcher is responsible for the actions of any individual operating under the authority of the researcher's designated take authorization within this incidental take statement. Such actions include capturing, handling, releasing, transporting, maintaining, and caring for any ESA-listed species authorized to be taken by this incidental take statement.
- Each researcher, staff member, or designated agent acting on the researcher's behalf must possess a copy of this incidental take statement when conducting the activities for which a take of ESA-listed species or other exception to ESA prohibitions is authorized herein.
- Researchers may not transfer or assign a take authorization included within this incidental take statement to any other person(s), as person is defined in Section 3(12) of the ESA. The take authorization ceases to be in force or effective if transferred or assigned to any other person without prior authorization from NMFS.
- Each researcher must obtain any other Federal, state, and local permits/authorizations necessary to conduct the activities provided for in this incidental take statement.
- Each researcher must coordinate with other applicable co-managers and/or researchers to ensure that no unnecessary duplication and/or adverse cumulative effects occur as a result of the researcher's activities.
- Each researcher must allow any NMFS employee(s), or any other person(s) designated by NMFS, to accompany field personnel during the activities provided for within this incidental take statement. Each researcher must allow such person(s) to inspect the researcher's records and facilities if such records and facilities pertain to ESA-listed species covered by this incidental take statement or NMFS' responsibilities under the ESA.
- Under the terms of NMFS' regulations, a violation of any of the terms and conditions of this incidental take statement will subject the offending researcher, and/or any individual who is operating under the authority of this incidental take statement, to penalties as provided for in the ESA.
- Each researcher is responsible for biological samples collected from ESA-listed species as long as they are useful for research purposes. The terms and conditions concerning any samples collected remain in effect as long as the researcher maintains authority over and responsibility for the material taken. A researcher may not transfer biological samples to anyone not listed in the research proposal without obtaining prior written approval from NMFS. Any such transfer will be subject to such conditions as NMFS deems appropriate.
- NMFS may amend a take authorization identified in this incidental take statement or adjust specific take levels after reasonable notice to the applicable researcher.
- NMFS may revoke a take authorization identified in this incidental take statement if the activities it provides for are not carried out, if the activities are not carried out in accordance with the conditions of this incidental take statement and the purposes and requirements of the ESA, or if NMFS otherwise determines that the continuation of activities would operate to the disadvantage of ESA-listed species.

10.5.3.2 Annual Reporting and Authorization Requirements

The conduct of scientific research/monitoring activities each year is contingent on submission and approval of a report on each preceding year's research and monitoring activities. Annual reports are due by January 31 of each year. The report must include the following:

- A detailed description of scientific research and monitoring activities, including the total number of fish taken at each location, an estimate of the number of ESA-listed fish taken at each location, the manner of take, and the dates and locations of the take

- Measures taken to minimize disturbances to ESA-listed fish and the effectiveness of these measures, the condition of ESA-listed fish taken and used for research and monitoring, a description of the effects of research and monitoring activities on the subject species, the disposition of ESA-listed fish in the event of mortality, and a brief narrative of the circumstances surrounding fish injuries or mortalities to ESA-listed fish
- Any problems that may arise during research and monitoring activities, and a
- statement as to whether the activities had any unforeseen effects
- A description of how all take estimates were derived
- Any preliminary analyses of the data
- Steps that have been and will be taken to coordinate research and monitoring activities with those of other researchers

10.5.3.3 Operational Reporting and Notification Requirements

- Researchers must provide plans for future undefined projects and/or changes in sampling locations or research/monitoring protocols and obtain NMFS' approval before implementation.
- Each researcher must alert NMFS whenever the authorized level of take is exceeded, or if circumstances indicate that such an event is imminent. Notification should be made as soon as possible, but no later than 2 days after the authorized level of take is exceeded. The researcher must then submit a detailed written report to NMFS. Pending a review of the circumstances, NMFS may suspend the research and monitoring activities or implement reasonable measures and/or alternatives to allow research and monitoring activities to continue.
- Each researcher must alert NMFS when a take of any ESA-listed species not included in the research proposal is killed, injured, or collected during the course of research and monitoring activities. Notification should be made as soon as possible, but no later than 2 days after the unauthorized take. The researcher must then submit a detailed written report to NMFS. Pending a review of the circumstances, NMFS may suspend research and monitoring activities or implement reasonable measures and/or alternatives to allow research and monitoring activities to continue.

ATTACHMENT C
U.S. FISH AND WILDLIFE SERVICE'S
FEDERAL COLUMBIA POWER SYSTEM BIOLOGICAL OPINION
SUMMARY OF INCIDENTAL TAKE STATEMENT REQUIREMENTS
FOR THE U.S. BUREAU OF RECLAMATION
December 2000

Action Item #	MEASURE OR TERM & CONDITION
	SECTION 10: Reasonable and Prudent Measures
10.1	The action agencies shall annually develop one and five-year implementation and funding plans to implement the measures contained in this Opinion.
10.2	The action agencies shall coordinate with the Service and NMFS on the proposed annual plan in sufficient time to allow review and discussion prior to implementation (normally before the start of the fiscal year).
10.3	The action agencies shall participate with the Service and NMFS in developing an interdepartmental memorandum of agreement which establishes and formalizes the purpose, structure, and scope of activities of a regional Federal coordinating body.
10.4	The action agencies shall coordinate annual implementation, review, and modification of the measures through an interagency group, such as the Implementation Team, or Technical Management Team (TMT).
10.5	The action agencies shall coordinate with the Service and NMFS, and the affected states and Tribes, in preseason planning and in-season management of water management operations. The coordination of in-season water management operations shall occur in the TMT process.
10.6	The action agencies, in coordination with the Service, shall implement an adaptive management approach for designing and implementing actions, including performance standards, needed for survival improvements for Kootenai River white sturgeon and bull trout in the Columbia River Basin.
10.7	The action agencies shall develop and coordinate with the Service, NMFS and EPA on a plan to model the water temperature effects of alternative Snake River operations, including Libby and Hungry Horse Dams. The modeling plan shall include a temperature data collection strategy developed in consultation with EPA, NMFS, and State and Tribal water quality agencies. The data collection strategy shall be sufficient to develop and operate the model and to document the effects of the project operations.

10.8	The action agencies shall initiate research to determine the upstream and downstream passage requirements of bull trout at FCRPS dams in the Columbia Basin. These investigations should address entrainment, both upstream and downstream adult passage, and juvenile passage. Consideration of spill, flow attraction, temperature and other issues affecting passage should be included.
	SECTION 1 0.A.1: Measures Specific to Bull Trout - Upper Columbia River
10.A.1.2	**10.A.1.2.** Implement operational measures at Hungry Horse Dam intended to minimize adverse effects of rapid and severe river flow fluctuations on bull trout, including year-round minimum flows and ramping rates, and seasonal water management; conduct studies to monitor the adequacy of the constraints; and provide for modification of the operational constraints depending on study results.
	SECTION 11: Terms and Conditions
11.1	In coordination with the Service and NMFS, the action agencies shall participate in development of performance standards appropriate for bull trout. The standards shall consider direction contained in the recovery plans for these species.
11.2	By September 1, 2001, in coordination with the Service, the action agencies shall develop a priority list of the FCRPS dams for research to determine up- and downstream passage needs of bull trout.
11.3	Based on the priority list in #2 above, the action agencies shall initiate research to determine the upstream and downstream passage requirements of bull trout at FCRPS dams. Include the Service, Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, Idaho Department of Fish and Game, and Montana Department of Fish, Wildlife and Parks, and relevant tribes, whenever appropriate, in development of research/study plans.
11.4	Based on research conducted above, and in coordination with the Service, implement any interim and long term measures found to be needed to provide suitable up- and downstream passage conditions for bull trout at FCRPS dams. If necessary to implement these measures, the action agencies may reinitiate consultation with the Service.
11.5	By September 1, 2001, in coordination with the Service, the action agencies shall develop a priority list of the FCRPS dams for evaluation to determine the extent of bull trout entrainment.
11.6	Based on the priority list in item #5, the action agencies shall assess the extent of bull trout entrainment at FCRPS dams. If entrainment is determined, in consultation with the Service, to be significant, the action agencies will explore techniques to deter bull trout entrainment (e.g., the expansion of strobe light research).
	SECTION 11.A.1: Bull Trout, Upper Columbia River

11.A.1.1.a	During water year 2001, (prior to implementation of VARQ), the action agencies shall seek a means to store and release sufficient water to provide for bull trout base flow prior to salmon flows and associated ramping volumes. The action agencies will adhere to the described ramping rates and minimum flows, as described in the revised proposed action. Should VARQ not be adopted by water year 2001, the action agencies shall continue with these alternative storage procedures, ramping rates and minimum flows for the duration of this biological opinion or with modifications agreed to during re-initiation of consultation.
11.A.1.2.a	The action agencies shall provide to the Service annually, on or about May 1 but not later than May 10, an annual operational schedule to be supplemented on a monthly basis. The annual schedule shall include month-end estimates of water surface elevation at Hungry Horse Reservoir and estimates of monthly discharge from Hungry Horse Dam. The monthly supplement shall include a report of actual operations over the previous month and shall include daily water surface elevation at Hungry Horse Reservoir and hourly spill and releases at Hungry Horse Dam.
	SECTION 11.A.2: Bull Trout, Lower Columbia River
11.A.2.1.c	The action agencies shall include observations of bull trout captured in field activities under their funding (e.g., research studies and northern pikeminnow reward program fisheries) and report that information annually to the Service.
11A.2.2.c	Include the Service, Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, Idaho Department of Fish and Game, and Montana Department of Fish, Wildlife and Parks whenever appropriate, in development of research/study plans.

ATTACHMENT D
U.S. FISH AND WILDLIFE SERVICE'S
FEDERAL COLUMBIA POWER SYSTEM BIOLOGICAL OPINION
CONSERVATION RECOMMENDATIONS
FOR THE U.S. BUREAU OF RECLAMATION
December, 2000

1. It is recommended that the action agencies seek cooperation of West Kootenai Power and other involved agencies and parties in Canada to negotiate higher Kootenay Lake/Kootenai River stages within the 1938 IJC order during sturgeon spawning flows. This may promote sturgeon recruitment with less stored water and fewer configuration improvements at Libby Dam during intermediate and low water years. (Corps, NWS, NWD-WM)

2. As U.S. representatives on the Kootenay lake board of control, and operators of Libby Dam, it is recommended that the action agencies seek opportunity to provide low flows in the Kootenai River during January or February for burbot migration and spawning. (Corps, NWS, NWD-WM)

3. The Service recommends that the action agencies initiate section 7 consultation on the proposed Columbia River Treaty Flood Control Operating Plan, October 1999. Proposed changes contained in this Plan may affect sturgeon spawning/rearing habitat conditions necessary for the survival and recovery of those species. (Corps, NWD-WM/BPA)

4. The Service recommends that the Corps continue monitoring TDG levels, and invest in facility improvements to keep TDG levels at or below 110% (or other applicable state water quality standards). (Corps, BOR)

5. The Service recommends that the Corps cooperate with research of bull trout movements and distribution for Dworshak Reservoir and tributaries. **RM&E** (Corps)

6. The Service recommends that the action agencies participate in development and implementation (when completed) of the bull trout recovery plan. (Corps, BPA, BOR)

7. The Service will participate in the established implementation forum consisting of the TMT, the Implementation Team (IT), and the Executive Committee. The primary purpose of this Regional Forum is conservation of species listed under the Endangered Species Act with consideration given to other affected aquatic resources. Recommendations by the Regional Forum to the action agencies will be made by consensus, except when no consensus is reached, the Service shall make the final recommendations on listed resident species. Operations for sturgeon, bull trout and salmon will be coordinated annually between the Service and NMFS through the TMT process. They may include the

multi-year planning process when warranted. (FWS)

8. The action agencies will work with the Service and Montana Department of Fish, Wildlife, and Parks to re-establish appropriate vegetation in the 20 foot drawdown zone of Hungry Horse Reservoir. A schedule should be developed for plans and funding to be secured by 2003, with implementation by 2005. **RM&E** (BOR)

ATTACHMENT E
U. S. NATIONAL MARINE FISHERIES SERVICE
FEDERAL COLUMBIA POWER SYSTEM BIOLOGICAL OPINION
CONSERVATION RECOMMENDATIONS
FOR THE U.S BUREAU OF RECLAMATION
December 21, 2000

11.1 CREATE SPAWNING HABITAT FOR LCR CHINOOK SALMON IN IVES ISLAND AREA BELOW BONNEVILLE DAM

As described in Section 6, the Action Agencies can augment lower Columbia River flows with upper basin reservoir storage to create spawning habitat for Tule chinook salmon in the Ives Island area. Starting the flow augmentation program described in Section 9.6.1.2.1 to benefit CR chum salmon approximately 4 weeks earlier will give LCR fall chinook salmon access to this habitat. However, NMFS is concerned about whether the hydrosystem can sustain this operation during a low or average water year without an adverse effect on the ability to meet flow objectives specified in Section 9.6.1.2.1. NMFS, therefore, recommends that the Action Agencies provide flow augmentation for access to spawning habitat in the Ives Island area as early as the first week in October, if the hydroregulation studies completed by mid-September indicate that the operation will not add significant risk to operations designed to meet spawning and incubation requirements for chum salmon or spring and summer flow objectives for juvenile migrants.

11.5 EVALUATE MOVING LOWER COLUMBIA RIVER FLOW MEASUREMENT LOCATION

The Action Agencies, in coordination with NMFS, will evaluate the hydrologic effects of moving the lower Columbia River flow measurement location from McNary Dam to Bonneville or The Dalles Dams. To do so, the parties will develop new flow objectives for those sites.

The present flow objectives were developed using available fish survival data at various locations in the basin. McNary Dam was selected as a flow measurement location because 1) data were available to define a flow objective, 2) it is located downstream of the confluence of the Snake and Columbia rivers, and 3) little active storage is provided by downstream FCRPS projects. Changing the flow objective to The Dalles or Bonneville Dam would include the streamflow depletion effects of BOR's projects located downstream of McNary Dam, as well as other water diversions from the lower Columbia River.

11.6 IMPROVE RUNOFF VOLUME FORECASTING

The Action Agencies will provide funding for improved runoff forecasts in storage reservoir basins. To improve forecasts may involve supporting such measures as improved forecasting methodologies, low elevation snowpack estimation by plane, addition of snow telemetry sites, improved and reliability of snow telemetry sites, and additional snow monitoring sites.

Accurate runoff forecasts are extremely important in managing Columbia Basin runoff for multipurpose uses such as electrical energy, flood control, and listed and unlisted fish species. Forecasting errors can cause too much water to be drafted for flood control, resulting in shortfalls of water for listed species and reservoir refill failures. The Libby basin is a site where runoff forecasting has to be improved. Water in that basin is needed to protect and enhance three listed species: salmon, bulltrout, and sturgeon. The average April-through-August runoff volume from 1960 to 1989 has been 6.4 Maf, the average forecast error has been 1.5 Maf, or 23.4%. In 2000, forecasts indicated that water would be available for sturgeon, bulltrout, and salmon. Libby Reservoir did not fill enough to provide any salmon augmentation water, however.

11.8 PARTICIPATE IN DEVELOPING MAINSTEM TMDLs

The Action Agencies will participate in developing the Columbia-Snake River mainstem TMDLs for TDG and water temperature. The Action Agencies will also participate in the collaborative process of developing the implementation plan resulting from the TMDLS.

The Columbia-Snake River mainstem TMDLs are being developed by EPA and the states of Oregon, Washington, and Idaho under court order. The TMDLs will establish load allocations for TDG and water temperature for the mainstem Snake River from RM 188 to its confluence with the Columbia River and for the mainstem Columbia River from the Canadian Border to the Astoria Bridge. The water quality plan (Appendix B) presents a conceptual strategy for the TMDL implementation plan. The plan should enable future decisions on study results from RPAs identified in the biological opinion (Appendix B, Table B-2) and should also help determine future decisions on studies identified as conservation measures (Appendix B, Table B-3).

The TMDL provides a useful tool under the CWA for developing a strategy to move toward attaining water quality standards. Participation by the Action Agencies with the states, EPA, the Tribes, and other Federal agencies and private entities in monitoring, modeling, data analysis, and action-item selection will yield a more coordinated and collaborative plan for moving toward standard attainment. Coordination with tributary TMDL and water quality standard attainment efforts will also benefit mainstem water quality efforts (conservation recommendation 1 1. I 1).

11.9 CONDUCT LONG-TERM GAS-ABATEMENT ALTERNATIVE STUDY

The Action Agencies should continue to conduct a long-term gas-abatement alternative selection study for the following FCRPS projects: Lower Granite, Little Goose, Lower Monumental, Ice Harbor, McNary, Bonneville, and Grand Coulee dams. The study would be a follow-up evaluation of long-term structural gas-abatement alternatives based on the results of 1) the Corps' system wide gas-abatement study due to be completed in spring 2001 and 2) the BOR's recently completed feasibility study of gas abatement alternatives at Grand Coulee Dam.

11.10 SUPPORT FEDERAL HABITAT TEAM

To ensure that Federal support for non-Federal habitat initiatives is effective, clear, regular, and predictable across Federal and non-Federal lands, lines of coordination will be needed among Federal agencies and between Federal and non-Federal entities. In the basinwide strategy, the Federal agencies propose to ensure coordination through a Federal Habitat Team.

The Action Agencies should enter into a memorandum of understanding with other Federal habitat agencies establishing a Federal Habitat Team to coordinate Federal activities across Federal and non-Federal lands. During the team's first year, BPA will provide a coordinator and administrative support. Thereafter, the Action Agencies should develop an agreement with other agencies participating on the team to share funding, staff, and administrative support.

11.12 PROVIDE ALTERNATIVE FISHING LOCATIONS

Working through regional priority processes and in collaboration with state, tribal, and Federal fishery managers, the Action Agencies will contribute to the identification, development, and establishment of alternative terminal fishing opportunities.

Fishery opportunities can be recreated, expanded, and/or improved in known-stock terminal areas where abundant fish can be harvested with minimal impacts on listed fish, provided the brood stock is appropriate to the area and/or unwanted straying is minimal. Those areas could potentially reduce fishing pressures in existing mixed stock areas, particularly for tribal fisheries that are already oriented toward terminal fishing. This strategy will be effective for tribal fisheries only to the extent that the affected Tribes are fully engaged in the planning process to ensure that usual and accustomed fishing areas, catch distribution, and other considerations receive appropriate respect

11.13 PROVIDE FISHERY EFFORT REDUCTION PROGRAMS

Working through regional prioritization processes and in collaboration with state, tribal, and Federal fishery managers, the Action Agencies will help develop and implement effective fishery effort reduction programs. The programs will be designed to add value to the catch in commercial fisheries in the basin by such means as price supports, value-added processing, and other strategies for mitigating the effects of harvest constraints necessitated by the status of natural populations.

Programs and strategies may include, but are not limited to, voluntarily buying out and retiring commercial fishing licenses and permits (particularly when catch reductions in harvest of listed species are needed), purchasing harvest conservation easements to further reduce impacts on listed fish in commercial fisheries, and identifying economic development strategies designed to enhance fishery values, even in the face of smaller catches. Innovative strategies might include the price supports and value-added measures mentioned above, or other strategies that enhance fishery values.